New Generation Nuclear Power Plant Cranes & Heavy Lifts – Curriculum Development

Executive Summary

The Southern Polytechnic State University (SPSU) Center for Nuclear Power Generation (NPG) has received funding from the U.S. Nuclear Regulatory Commission's (NRC's) Nuclear Education Program and has developed a comprehensive course in "Construction & Startup," which is being successfully presented with the participation and support of NRC's Region II, the Institute of Nuclear Power Operations, Tennessee Valley Authority, FLUOR Southern Company, and other industry members. Part of this course addresses "Cranes & Heavy Lifts," which is a very important safety aspect in the new Nuclear Power Plant (NPP) modularized construction, operation and maintenance, as-well-as NRC-ITAAC compliance with NQA-1 requirements. Cranes were always very important in the construction and operation NPPs. However, with the new modularization approach, they have become critical. Although cranes are common in heavy industries, nuclear cranes are treated in many applications as safety related, and thus require enhanced safety in design, fabrication, installation, pre-operational testing, operation and maintenance, and finally, in their use. The American Society of Mechanical Engineers (ASME) standards NOG-1 and NUM-1 guide crane usage in NPPs and are an integral part of this course. The ASME Board on Nuclear Codes & Standards and the ASME Committee on Cranes for Nuclear Facilities support this proposed course.

The purpose of this proposal is to secure funding to upgrade the existing SPSU-NPG curriculum to include comprehensive coverage on NPP cranes. This, in turn, will help train future design, construction, and operations personnel in crane manufacturing, installation, usage and maintenance. This course, at present, does not exist, nor does the number of experts needed to fill the need.

Principal Investigator, Tony Sideris, tsideris@spsu.edu